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May-Thurner Syndrome: Diagnosis and Treatment

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Disclosures

• None
Introduction

• Non-thrombotic Iliac Vein Lesion
  – NIVL occurs where veins are impinged, compressed or damaged by a neighboring artery or structure. Intraluminal lesion occurs in 1/3 pts.
  – NIVL may precipitate iliofemoral DVT
Introduction

1957- described condition by which chronic pulsations of right CIA can lead to spur formation along vein wall of left CIV
Anatomy

Source: S. M. Dean, B. Satiani, W. T. Abraham: Color Atlas and Synopsis of Vascular Diseases
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Prevalence

- True prevalence of May–Thurner syndrome unknown
- 20% people may have asymptomatic compression: “Permissive anomaly”
- Old data suggests women between 30-50 years are primarily affected
- Newer data indicates prevalence is more significant than thought

Prevalence

• Patients with severe chronic venous disease (37% >50% stenosis)\(^1\)
• Reported to be 600,000 DVT hospitalizations per year in US
• 50-65% of DVTs occur in left leg
• Iliac vein compression thought to occur ~18 - 69% DVT \(^1,2\)

Stages

• Stage 1: Iliac vein compression without structural vein changes = Asymptomatic
• Stage 2: Venous spur formation which are fibrous shelves eventually developing in the vein, restricting blood flow and increasing risk for edema and DVT. Asymptomatic.
• Stage 3: Symptomatic obstruction: DVT, edema and the formation of varicose veins.
Symptoms

- Dull aching, heaviness, or cramping in legs
- Pain that gets worse when standing
- Pain that gets better when legs are raised
- Redness of the legs and ankles
- Skin color changes around the ankles
- Varicose veins on the surface (superficial)
- Thickening & hardening of the skin on the legs & ankles
- Ulcers on the legs and ankles
- DVT
Physical Exam
Clinical, Etiology, Anatomic, Pathophysiology

• CEAP- Universal Classification & Scoring of Venous Disease
  – C0 – No Disease
  – C1 – Spider veins
  – C2 – Varicose Veins
  – C3 – Edema
  – C4 – Pigmentation, Eczema
  – C5 – Healed Venous Ulcer
  – C6 – Active Venous Ulcer
Left Common Iliac Vein Compression

Stenosis at the confluence of the left common iliac vein and IVC is at the correct location for compression by an overlying right common iliac artery: May-Thurner syndrome

Dilated left lumbar vein collateral

Dilated pelvic vein collaterals
Imaging

• Venous Duplex Ultrasound: Poor sensitivity and specificity

• CT Venography and MRI Venography:
  – > 95% sensitivity and specificity but require adequate technical protocols for imaging acquisition


How does IVUS compare to single plane venography?

“Single-plane venography may be relatively insensitive in the detection of ilio caval compression compared with IVUS... venography has been demonstrated to have a sensitivity of only 45% for the detection of chronic iliac obstruction”

Venography

Clue: Thinning of dye where Artery crosses the vein
Venography

Compression at Lt ilio caval junction
IntraVascular Ultrasound (IVUS)

• 304 consecutive limbs before and after stenting
• Used IVUS as a standard, venography single plane had a poor sensitivity 45% in detecting area stenosis >70%
• Actual area demonstrated higher degrees of stenosis when measured directly with IVUS as opposed to calculation of diameter (non-circular geometry of stenosis)

IVUS: SIGNIFICANT ILIAC VEIN COMPRESSION

≥ 50% reduction in intraluminal area
• Since IVUS has a diagnostic sensitivity of >90% and is free of radiation, it has become the diagnostic standard in iliac vein compression.

Conventional Management

- Compression stockings to decrease swelling
- Wound Care Centers for open wounds sores or infections
- Laser or RF ablation of incompetent veins
- Surgery (varicose vein stripping)
- Diuretics for edema resolution
- Lymphedema Pump
Treatment

- Given “spur” and scar formation that occurs from MTS, it is clear that venous angioplasty is not in itself an effective treatment. ¹
- 1/3 patients treated with thrombolysis for iliofemoral DVT required stenting and that the stented patients had significantly higher patency than those who were not stented. ²

Treatment

- Guidelines by the Society of Interventional Radiology and the Society of Vascular Surgery recommend iliac venous stenting in setting of iliac vein compression. 1,2

- Durability of stents in iliac veins is described in setting of DVT, with primary patency rates of 79% at 72 months. 3


Stenting

Before

After
Post Stenting Venogram
Conclusion

May-Thurner syndrome: a not so uncommon cause of a common condition

This anatomic finding has been shown to be present in over 20% of the population; however, it is rarely considered in the differential diagnosis of leg edema, DVT, and chronic venous disease particularly in patients with other risk factors. Systemic anticoagulation, compression therapy, and venous ablation are ineffective or insufficient treatment, and a more aggressive approach is necessary to prevent complications.
Thank You